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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-------------------|-------------|----------------------|---------------------|------------------|
| 10/791,001 | 03/01/2004 | Jeffrey S. Lille | HSJ9-2003-0114US1 | 1299 |
| 32112 | 7590 | 06/05/2006 | EXAMINER | |
| WATKO, JULIE ANNE | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 2627 | | | | |

DATE MAILED: 06/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) |
|------------------------------|------------------------|---------------------|
| | 10/791,001 | LILLE, JEFFREY S. |
| Examiner | Art Unit | |
| Julie Anne Watko | 2627 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 24 April 2006.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-27 is/are pending in the application.
4a) Of the above claim(s) 13-20 is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-6, 11, 12 and 21-23 is/are rejected.

7) Claim(s) 7-10 and 24-27 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 01 March 2004 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) Notice of Informal Patent Application (PTO-152)
6) Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of group I, claims 1-12 and 21-27, in the reply filed on April 24, 2006, is acknowledged.
2. Claims 13-20 are withdrawn from consideration as drawn to a non-elected invention.

Drawings

3. The drawings were received on June 8, 2004. These drawings are not acceptable. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d).

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

Replacement Drawing Sheets

Drawing changes must be made by presenting replacement sheets which incorporate the desired changes and which comply with 37 CFR 1.84. An explanation of the changes made must be presented either in the drawing amendments section, or remarks, section of the amendment paper. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). A replacement sheet must include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of the amended drawing(s) must not be labeled as "amended." If the changes to the drawing figure(s) are not accepted by the examiner, applicant will be notified of any required corrective action in the next Office action. No further drawing submission will be required, unless applicant is notified.

Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and within the top margin.

Annotated Drawing Sheets

A marked-up copy of any amended drawing figure, including annotations indicating the changes made, may be submitted or required by the examiner. The annotated drawing sheet(s) must be

clearly labeled as “Annotated Sheet” and must be presented in the amendment or remarks section that explains the change(s) to the drawings.

Timing of Corrections

Applicant is required to submit acceptable corrected drawings within the time period set in the Office action. See 37 CFR 1.85(a). Failure to take corrective action within the set period will result in ABANDONMENT of the application.

If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings MUST be filed within the THREE MONTH shortened statutory period set for reply in the “Notice of Allowability.” Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136 for filing the corrected drawings after the mailing of a Notice of Allowability.

4. Figures 1-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the elected claims are directed.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-6, 11-12, 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al (US Pat. No. 6731461 B2).

As recited in independent claims 1 and 21, Yamada et al show a magnetic head comprising: a write head portion (upper portion in Fig. 5) including a first magnetic pole (24, for example) and a second magnetic pole (20, for example); an induction coil 22 being disposed at least in part between said first and second magnetic poles; an electrical lead of said induction coil being (inherently) disposed in a layer of the magnetic head; a heat sink 30.

As recited in claim 1, Yamada et al are silent regarding the heat sink being coplanar within the magnetic head with said electrical lead of said coil; however, this position was within the level of ordinary skill in the art.

There is no invention in relocating known parts, when the functioning of the apparatus is not changed by the relocation. *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to arrive at the claimed relative locations of parts in the course of routine experimentation and optimization and as a matter of design choice. The rationale is as follows: one of ordinary skill in the art would have been motivated to achieve proximity between heat sink and coil so as to radiate heat efficiently (see col. 5, lines 14-39) and to save a forming step by forming the heat sink layer in a same step as another layer is formed as taught by Yamada et al (see col. 5, lines 17-18; see also col. 8, lines 18-19).

As recited in independent claim 21, in addition to the above teachings, Yamada et al are silent regarding a hard disk drive comprising: at least one hard disk being adapted for rotary motion upon a disk drive; at least one slider device having a slider body portion being adapted to

fly over said hard disk, and a magnetic head being formed on said slider body for writing data to said hard disk.

Official notice is taken of the fact that it was known in the art at the time the invention was made to use a magnetic head in a hard disk drive environment having the recited limitations.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the head of Yamada et al in the known hard disk drive environment. The rationale is as follows: one of ordinary skill in the art would have been motivated to dynamically record, store and reproduce data as is notoriously well known in the art.

As recited in claim 2, Yamada et al show that said heat sink is comprised of copper.

As recited in claim 2, Yamada et al are silent regarding whether said electrical lead is comprised of copper.

Official notice is taken of the fact that a copper electrical lead was known in the art at the time the invention was made.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the electrical lead out of copper as is notoriously well known in the art. The rationale is as follows: one of ordinary skill in the art would have been motivated to make the electrical lead out of copper in order to achieve high electrical and heat conductivity as is notoriously well known in the art.

As recited in claims 3 and 22, Yamada et al show that said heat sink 30 is disposed at least in part upon (but not directly upon) said second magnetic pole 20 (see Fig. 6).

As recited in claims 4 and 23, Yamada et al show an insulation layer (including the insulation between pole 20 and coil 22, for example) that is disposed in part above said second magnetic pole.

As recited in claims 4 and 23, Yamada et al are silent regarding the claimed locations of said electrical lead and said heat sink.

There is no invention in relocating known parts, when the functioning of the apparatus is not changed by the relocation. *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to arrive at the claimed relative locations of parts in the course of routine experimentation and optimization and as a matter of design choice. The rationale is as follows: one of ordinary skill in the art would have been motivated to achieve proximity between heat sink and coil so as to radiate heat efficiently (see col. 5, lines 14-39) and to save a forming step by forming the heat sink layer in a same step as another layer is formed as taught by Yamada et al (see col. 5, lines 17-18; see also col. 8, lines 18-19), and to save a forming step by forming the lead in a same step as the coil as is notoriously well known in the art.

As recited in claim 5, Yamada et al show that said heat sink 30 includes a first substantial portion (see right part of 30 in Fig. 5) that is disposed above said second magnetic pole 20, and another substantial portion (see left part of 30 in Fig. 5) that is disposed away from said second magnetic pole 20.

As recited in claim 6, Yamada et al are silent regarding whether said heat sink is disposed away from an air bearing surface of the magnetic head.

There is no invention in relocating known parts, when the functioning of the apparatus is not changed by the relocation. *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to arrive at the claimed relative locations of parts in the course of routine experimentation and optimization and as a matter of design choice. The rationale is as follows: one of ordinary skill in the art would have been motivated to avoid destroying magnetically recorded bits of information by heating the medium as is known in the art.

As recited in claim 11, Yamada et al are silent regarding whether said magnetic head is a longitudinal head.

Official notice is taken of the fact that longitudinal heads and perpendicular heads were known in the art at the time the invention was made.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the head of Yamada et al as a longitudinal head. The rationale is as follows: one of ordinary skill in the art would have been motivated to implement the head as a longitudinal head so as to enable recording on inexpensive magnetic media as is notoriously well known in the art.

As recited in claim 12, Yamada et al are silent regarding whether said magnetic head is a perpendicular magnetic head.

Official notice is taken of the fact that longitudinal heads and perpendicular heads were known in the art at the time the invention was made.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the head of Yamada et al as a perpendicular magnetic head. The

rationale is as follows: one of ordinary skill in the art would have been motivated to implement the head as a perpendicular magnetic head so as to enable recording on high density magnetic media as is notoriously well known in the art.

Allowable Subject Matter

8. Claims 7-10 and 24-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

IBM (IBM TDB no. 454, p. 314, February 1, 2002) teaches that "heat conduction along the leads is a major mechanism by which heat generated in MR sensors is removed."

Matono et al (US PAP No. 2005/0047015 A1) show a thin film magnetic head and magnetic recording apparatus wherein 10C functions as both heat sink and electrical lead (see ¶ 0109, "the step of forming the heat sink layer 10 includes forming the intermediate portion 10C which functions as part of the lead").

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julie Anne Watko whose telephone number is (571) 272-7597. The examiner can normally be reached on Monday through Thursday, noon to 10PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne D. Bost can be reached on (571) 272-7023. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Julie Anne Watko, J.D.
Primary Examiner
Art Unit 2627

May 30, 2006
JAW

A handwritten signature in black ink, appearing to read "Julie Anne Watko", is positioned to the right of the typed name and title.